

What is claimed is:

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a. 1. An apparatus for suppressing stimulated Brillouin scattering (SBS) in an optical transmission system, comprising:
- 5 a plurality of first transmission means, each of which has a wavelength separation, for transmitting information signals through a signal channel; and
- 10 a second transmission means for generating and transmitting a supervisory signal of which a modulation frequency and an intensity generates a phase modulation to the plurality of information signals, through a supervisory channel,
- 15 wherein the modulation frequency and the intensity of the supervisory signal are modulated in phase to the information signals by a cross phase modulation effect, thereby broadening a line width of the information signal.
2. The apparatus as recited in claim 1, further comprising:
- 20 a multiplexing means for multiplexing output signals of the plurality of first transmission means and the second transmission means;
- 25 a first amplifying means for amplifying the multiplexed signal from the multiplexing means and then transmitting it to a transportation means;
- a second amplifying means for amplifying the signal

transmitted through the transportation means;

a demultiplexing means for demultiplexing the amplified signal by the second amplifying means and separating signals to the information signals and the supervisory signal;

5 a first receiving means for detecting the separated by the demultiplexing means; and

a second receiving means for detecting signal for the supervisory signal separated by the demultiplexing means.

10 3. The apparatus as recited in claim 1, wherein the second transmission means controls the modulation frequency and intensity to the information signal in order to generate a phase modulation by a cross phase modulation effect.

15 4. The apparatus as recited in claim 3, wherein the second transmission means controls the modulation frequency and intensity to only the information signal in order to generate a cross phase modulation by a modulation of the supervisory signal.

20 5. A method for suppressing stimulated Brillouin scattering in an optical transmission system, comprising the steps of:

25 a) transmitting information signals through a signal channel, each information signal having a wavelength separation; and

b) generating and transmitting a supervisory signal of

which a modulation frequency and an intensity generates a phase modulation to the plurality of information signals, through a supervisory channel,

wherein the modulation frequency and the intensity of the supervisory signal are modulated in phase to the information signals by a cross phase modulation effect, thereby broadening a line width of the information signal.

6. The method as recited in claim 5, further comprising the steps of:

- d) multiplexing the information signals and the supervisory channel;
- e) amplifying and transmitting the multiplexed signal;
- f) amplifying the transmitted signal;
- g) demultiplexing the amplified signal at the step f) and then separating the signals into the information signal and the supervisory signal;
- h) detecting the information signal the separated signal;
- and
- i) detecting the supervisory signal.

7. The method as recited in claim 5, wherein the step b) controls the modulation frequency and intensity to the signal channel in order to generate a phase modulation by a cross phase modulation effect.

8. The method as recited in claim 7, wherein the step b)

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